

Type 1 diabetes: The Bangladesh perspective

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ABSTRACT

Diabetes mellitus (DM) is a common endocrine disorder among children and adolescents in Bangladesh. The latest International Diabetes Federation atlas estimated the incidence of type 1 DM (T1DM) in Bangladesh as 4.2 new cases of T1DM/100,000 children (0–14 years)/year, in 2013. Diabetes, being a lifelong disease, places a huge burden on the economy of the most densely populated, and resource-poor country of the world. The Diabetic Association of Bangladesh (BADAS), the largest of its kind in the world, provides comprehensive care to the biggest number of diabetics at any one centre and is engaged in advocacy. Although sounding grandiose, it's aims that 'no diabetic shall die untreated, unfed or unemployed, even if poor' is pursued with a passion. Recently BADAS has been supported in its endeavor for children and adolescents by two programmes; viz the Changing Diabetes in Children program (a joint initiative of BADAS, the World Diabetes Foundation and Novo Nordisk), and the Life for a Child Programme (LFAC) supported by the IDF. Numerous studies from the prosperous countries have demonstrated the incidence of T1DM is increasing. Data from the CDiC clinic at BIRDEM shows a rising trend in patients presenting with classical T1DM. In addition, the pattern of DM is changing.

Key words: BADAS, CDiC, Bangladesh, LFAC, T1DM

INTRODUCTION

Bangladesh is divided into 64 administrative districts and has a population of 149.7 million,^[1] area of 147,570 km², and population density of approximately 1015 people/km². The country has a total fertility rate of 2.3/capita GDP of \$772,^[1] life expectancy of 69.5 years.^[1] The government's expenditure on health is the third largest in the country, after education and defense. The paradox of Bangladesh lies in its GDP and its achievements in the health, education, and socio-economic sectors. The increasing incidence of childhood and adolescent DM is a global phenomenon.

The latest International Diabetes Federation (IDF) Atlas estimated the incidence of type 1 DM (T1DM) in Bangladesh

at 4.2 new cases of T1DM/100,000 children (0–14 years)/year, in 2013.^[2] The highest incidence of T1DM (children 0–14 years) is estimated to be in Europe and North America, with South-east Asia closely following the trend at third position. Bangladesh is facing an explosion in numbers of diabetics, particularly T2DM. A series of studies have reported a constant global increase in the incidence of T1DM, and multifactorial process might be involved.^[3] At the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), there has been an upward trend in the number of newly diagnosed children, from 112 cases in 2008 to 319 cases in 2013, as documented by the Changing Diabetes in Children (CDiC) program at BIRDEM. The question, however, remains whether this upward trend is because of a real increase in the incidence of childhood DM or increased awareness and a decrease in prevalence of communicable diseases, brought about by hygienic practices, immunization against common infectious diseases, with a concomitant rise in non-communicable diseases (NCD).

Recent studies show that it is likely that multifactorial reasons are responsible for the increasing incidence e.g., hygienic practices, feeding regimens (autoimmunity to cow's milk).^[3]

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BADAS has contributed massively to educating the public about diabetes, such that the hitherto unaccepted notion that children could get and die from DM, has been translated into a relatively low threshold for testing for DM in children with polyuria, loss of weight, unconsciousness etc.

The social challenges faced by T1DM children are numerous. Many of them are poor, with little access to education. They are often considered a burden on the family, especially girls; they have little prospect of getting married or being employed. Girls are often married off early. DM is likely to be hidden from teacher, prospective spouse and employer, often with far-reaching consequences.

Lack of motivation, inability to manage common complications e.g., hypoglycaemia, sick day management, drop out from the clinic (which may be due to lack of motivation or extra cost involved in travel), psychological issues, are other common problems.^[4]

The Diabetic Association of Bangladesh (BADAS), which was established in 1956, is the largest of its kind in the world, with 68 affiliated associations in 64 districts of the country. It has more than 400,000 diabetics registered at its tertiary centre, BIRDEM in Dhaka. Prior to BADAS, there was no care available for patients with DM needing insulin under the government health services, so poor patients faced certain death! Episodic care was the only kind available, and patients with chronic diseases, faced an uncertain and grim future. Prof. M. Ibrahim pioneered diabetes care in Bangladesh and was one of its founding fathers. The motto was that 'no diabetic shall die untreated, unfed or unemployed, even if poor'. Starting of as an OPD, BADAS has grown into a network of 64 affiliated associations, one in as many districts, and a chain of small hospitals and OPDs, as well as medical and nursing schools. All patients, irrespective of socio-economic status, are entitled to free consultation and certain tests. Treatment, including insulin, is available to patients free of cost if entitled, or according to income. BADAS operates on a cross-financing model, such that services for the poor are subsidized from the income earned from the well-to-do, who come to seek care or be investigated. BADAS is a member of the IDF and was a WHO Collaborative Centre until recently.

Children with diabetes are still managed by adult physicians or occasionally by adult paediatricians, except in institutions like BIRDEM, where paediatricians took over the care of children, and adolescents with diabetes in 1997, as well as in Dhaka Shishu Hospital. Children and adolescents have special needs at different stages e.g., nutrition, schooling, growth, puberty etc., Over the years, the profile of DM

in children has changed. Initially, when the department of paediatrics started, the majority of patients were classed as MRDM, and classical T1DM were a minority. However, the situation is reversed now, with an increase across all socio-economic groups of T1DM.

The burden of providing for the care of diabetic patients places a huge demand on the stretched resources of BADAS. T1DM is insulin dependent, and insulin is an expensive medicine.

Two programs need special mention, the Changing Diabetes in Children (CDiC) program, and the Life for a Child (LFAC) program, the former sponsored by Novo Nordisk and the latter by the International Diabetes Federation (IDF). CDiC has three clinics in Bangladesh, all operated by local manpower. The central one is located in Dhaka and the peripheral ones are located in 2 district headquarters; Chittagong and Faridpur. The number of patients enrolled in Dhaka is 1477, in Faridpur 216 and 200 in Chittagong. Age of the children range from 0-18yrs. Under the LFAC program, there are 2200 registered (1yr-23yrs). There is a slight preponderance of females over males.

With the launch of these 2 programs, the intensity of motivation and education increased and as a result, glycaemic control has improved over time from a HbA1C of more than 9% to a gradual fall to < 7.5% amongst the CDiC patients.

Both the programs are providing support by providing free consultation, free insulin, education, machines for measurement of HbA1C, microalbumin on spot urine sample, and retinal camera. Some blood tests, annual check-up and screening for complications, growth and pubertal monitoring are done free of cost. CDiC has constructed the clinic within the premises of the Women's and Children Hospital (BIRDEM2) and has been providing funds for running the clinic including doctors' and supporting staff salary. Under its umbrella, CDiC supports some health care staff, including a psychologist. and runs an enviable education programme. The education program was set up with the help of CDiC, and employs diabetes educators, a cadre specially trained in a structured diabetology course, training patients and caregivers in injection and testing techniques, and advising patients about any issues related to diabetes. However, now diabetes educators are being paid for by patients using the cross-financing model. Also certain components of the check-up are available on payment by the well-to-do.

The LFAC program is carrying out a multi-centred epidemiological study of T1DM, which will give us an

insight into the risk factors, trends etc., in different parts of the world. Both the programs complement each other.

BADAS has played a central role in creating awareness about diabetes in the country. It also brought to the world's notice that DM is increasing alarmingly and every nation has a responsibility to prevent the onward march of this threat, which culminates in 14th November being declared the UN World Diabetes Day.

SUMMARY

Diabetes in children and adolescents is increasing in Bangladesh, and comprehensive diabetes care is essential to achieve good glycaemic control. Diabetes education combined with appropriate motivation of the patients and caregivers is the cornerstone of DM management.

Sustainability of the programs will ensure that the child with diabetes can lead a normal life.

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